IN THE CLAIMS

Claims 1-40 (Cancelled).

41. (Previously Presented) The system according to claim 46, wherein the optically readable substrate comprises a self-authenticating sealing tape, the tape further comprising a seal tamper indicator, the data pattern comprises a plurality of unique identification portions of the tape, periodically disposed along a length thereof, wherein a recorded hash of identifications is disposed proximate to a respective unique identification portion.

42. (Previously Presented) The system according to claim 41, wherein the optically readable characteristics comprise a pattern selected from the group consisting of a random dye pattern and a random fiber pattern.

Claims 43-45 (Cancelled)

46. (Currently Amended) An optically readable data storage medium, comprising an optically readable substrate having a data pattern and a set of optically readable characteristics which are randomly determined by a non-deterministic physical manufacturing process, further comprising a cryptographically processed set of identifications of the random optically readable characteristics, and the data pattern, associated with the data storage medium, the data pattern and the optically readable characteristics being adapted to be readable by a common imaging system, wherein the data storage medium is resistant to reproduction and alteration of the data pattern can be detected, in combination with an authentication device, said authentication device comprising:

(a) an illumination source having an output adapted for exciting fluorescence;

(d) an optical imaging sensor, for sensing a pattern of fluorescence; and

(e) a processor for analyzing said pattern of fluorescence as said set of optically readable characteristics which are randomly determined by a non-deterministic physical manufacturing process, to determine a correspondence thereof with said cryptographically

processed set of identifications of the random optically readable characteristics and the data pattern associated with the data storage medium.

47. (Previously Presented) The optically readable data storage medium according to claim 46, wherein said cryptographically processed set of identifications comprises a cryptographic hash.

48. (Previously Presented) The optically readable data storage medium according to claim 46, wherein said cryptographically processed set of identifications comprises a digital signature.

49. (Previously Presented) The optically readable data storage medium according to claim 46, wherein said cryptographically processed set of identifications is encrypted using a public-key private key technique.

50. (Previously Presented) The optically readable data storage medium according to claim 46, wherein said optically readable characteristics comprise a fluorescence pattern.

51. (Previously Presented) The optically readable data storage medium according to claim 46, wherein said optically readable characteristics comprise a polarization pattern.

52. (Previously Presented) The optically readable data storage medium according to claim 46, wherein said optically readable characteristics comprise a random fiber pattern.

53. (Cancelled)

54. (Currently Amended) The optically readable data storage medium according to claim 46 ~~53~~, wherein said set of optically readable characteristics which are randomly

determined by a non-deterministic physical manufacturing process comprise a non-deterministic optical polarization pattern.

55. (Currently Amended) The optically readable data storage medium according to claim 46 ~~53~~, wherein said set of optically readable characteristics which are randomly determined by a non-deterministic physical manufacturing process comprise a non-deterministic optical fluorescent polarization pattern, wherein said illumination source excites a fluorescence of said pattern, and said optical imaging sensor determines a polarized fluorescent optical pattern.

56. (Currently Amended) The optically readable data storage medium according to claim 46 ~~53~~, wherein said set of optically readable characteristics which are randomly determined by a non-deterministic physical manufacturing process comprise a non-deterministic optical polarization pattern, wherein said optical imaging sensor determines a polarization pattern under at least two different image acquisition states.

57. (Currently Amended) The optically readable data storage medium according to claim 46 ~~53~~, wherein said set of optically readable characteristics which are randomly determined by a non-deterministic physical manufacturing process comprise a non-deterministic optical fluorescent pattern, wherein said illumination source and optical imaging sensor together determine a specific fluorescence characteristic of the fluorescent optical pattern.

58. (Currently Amended) ~~The~~ An optically readable data storage medium, comprising an optically readable substrate having a data pattern and a set of optically readable characteristics which are randomly determined by a non-deterministic physical manufacturing process, further comprising a cryptographically processed set of identifications of the random optically readable characteristics, and the data pattern, associated with the data storage medium, the data pattern and the optically readable characteristics being adapted to be readable by a common imaging system, wherein the data storage medium is resistant to reproduction and alteration of the data pattern can be detected ~~according to claim 46~~, further comprising an authentication device, said authentication device comprising:

(a) an illumination source having a narrowband output adapted for exciting fluorescence at a wavelength differing from said narrowband output, having a time-varying polarization axis;

(b) an optical filter to exclude the narrowband output and pass the fluorescence at the wavelength differing from said narrowband output;

(c) an optical imaging sensor directed toward an imaging region, for sensing dichroic elements and a recorded data pattern through said optical filter; and

(d) a processor for extracting a pattern of dichroic elements from a background, based on changes in an output of said optical imaging sensor under a plurality of respective polarization axes, and for determining whether the extracted pattern corresponds to a predetermined pattern.

59. (Currently Amended) ~~The~~ An optically readable data storage medium, comprising an optically readable substrate having a data pattern and a set of optically readable characteristics which are randomly determined by a non-deterministic physical manufacturing process, further comprising a cryptographically processed set of identifications of the random optically readable characteristics, and the data pattern, associated with the data storage medium, the data pattern and the optically readable characteristics being adapted to be readable by a common imaging system, wherein the data storage medium is resistant to reproduction and alteration of the data pattern can be detected ~~according to claim 46~~,

wherein said optically readable data storage medium comprises an optically readable substrate having a data pattern and a set of anisotropic optically readable fluorescent characteristics which are randomly determined by a non-deterministic physical manufacturing process;

further comprising an authentication device, said authentication device comprising:

(a) an illumination source adapted for exciting the fluorescent characteristics;

(b) a polarizer;

(c) an optical filter which filters an output of the illumination source and passes the fluorescence;

(d) a common optical imaging sensor directed toward an imaging region, for sensing fluorescent characteristics and a recorded data pattern through said optical filter; and

(e) a processor for extracting a pattern of the anisotropic optically readable fluorescent characteristics, and for authenticating the storage medium based on a correspondence of the extracted pattern and the recorded hash, whereby the data storage medium is resistant to reproduction and alteration of the data pattern can be detected.

60. (New) The optically readable data storage medium according to claim 59, wherein said cryptographically processed set of identifications comprises a cryptographic hash.

61. (New) The optically readable data storage medium according to claim 59, wherein said cryptographically processed set of identifications comprises a digital signature.

62. (New) The optically readable data storage medium according to claim 59, wherein said cryptographically processed set of identifications is encrypted using a public-key private key technique.

63. (New) The optically readable data storage medium according to claim 59, wherein said optically readable characteristics comprise a random fiber pattern.

64. (New) The system according to claim 59, wherein the optically readable substrate comprises a self-authenticating sealing tape, the tape further comprising a seal tamper indicator, the data pattern comprises a plurality of unique identification portions of the tape, periodically disposed along a length thereof, wherein a recorded hash of identifications is disposed proximate to a respective unique identification portion.

65. (New) The optically readable data storage medium according to claim 58, wherein said cryptographically processed set of identifications comprises a cryptographic hash.

66. (New) The optically readable data storage medium according to claim 58, wherein said cryptographically processed set of identifications comprises a digital signature.

67. (New) The optically readable data storage medium according to claim 58, wherein said cryptographically processed set of identifications is encrypted using a public-key private key technique.

68. (New) The optically readable data storage medium according to claim 58, wherein said optically readable characteristics comprise a random fiber pattern.

69. (New) The system according to claim 58, wherein the optically readable substrate comprises a self-authenticating sealing tape, the tape further comprising a seal tamper indicator, the data pattern comprises a plurality of unique identification portions of the tape, periodically disposed along a length thereof, wherein a recorded hash of identifications is disposed proximate to a respective unique identification portion.